Claims

1. A method of cooling circulating air by means of heat exchange with adiabatically cooled process air,

characterised in that

after its heat exchange with the circulating air, the cooled process air absorbs heat from the uncooled process air.

2. A method as claimed in Claim 1, characterised in that the adiabatic cooling of the process air is effected in a single stage in the heat exchange with the circulating air.

3. A method as claimed in Claim 1, characterised in that the circulating air and the process air are conducted in co-current in the heat exchange process.

4. A method as claimed in Claim 1, characterised in the circulating air and the process air are conducted in counter-current in the heat exchange process.

5. A method as claimed in Claim 1, characterised in that the circulating air and the process air are conducted in cross-current in the heat exchange process.

6. A method as claimed in Claim 1, characterised in that the circulating air and the process air are conducted in cross-co-current through two cross-flow heat exchangers (2, 3) in the heat exchange process.

7. A method as claimed in Claim 1, characterised in that the circulating air and the process air are conducted in cross-counter current through cross-flow heat exchangers (2, 3) in the heat exchange process.

8. A method as claimed in Claim 1, characterised in that the cooling performance is controlled by variation of the circulating air/process air mass flow ratio.

9. A method as claimed in Claim 1, characterised in that the cooling performance is controlled by variation of the amount of water introduced into the process air.

10. A method as claimed in Claim 1, characterised in that the cooled process air is exhausted after it has absorbed heat from the uncooled process air.

11. Apparatus for cooling circulating air (4) including a first heat exchanger device (1), which may be fed with the circulating air (4) and with process air (6), and a moistening device (7) for introducing water into the process air (6),

characterised by

a second heat exchanger device (12) for heat exchange between the uncooled process air (6) before its entry into the first heat exchanger device (1) and the cooled process air (6) after its discharge from the first heat exchanger device (1).

12. Apparatus as claimed in Claim 11, characterised in that the second heat exchanger device (12) may be bypassed, at least on the inlet side of the uncooled process air (6), via a bypass.

13. Apparatus as claimed in Claim 11, characterised in that the moistening device (7) may be switched off.

14. Apparatus as claimed in Claim 11, characterised in that a moistening device (7) is integrated in the first heat exchanger device (1).

15. Apparatus as claimed in Claim 11, characterised in that the first heat exchanger device (1) is operable in co-current.

16. Apparatus as claimed in Claim 11, characterised in that the first heat exchanger device (1) is operable in counter-current.

17. Apparatus as claimed in Claim 11, characterised in that the first heat exchanger device (1) is operable in cross-current.

18. Apparatus as claimed in Claim 11, characterised in that the first heat exchanger device (1) includes at least two cross-current heat exchangers (2, 3).

19. Apparatus as claimed in Claim 18, characterised in that the first heat exchanger device (1) is operable in cross-co-current.

20. Apparatus as claimed in Claim 18, characterised in that the first heat exchanger device (1) is operable in cross-counter current.

21. Apparatus as claimed in Claim 11, characterised by a blower (13) for exhausting the process air (6) arranged in the pathway of the cooled process air (6) downstream of the second heat exchanger device (12).